

U.S. Patent Application Serial No. **10/694,057**
Response filed June 26, 2006
Reply to OA dated February 28, 2006

REMARKS

Claims 1-6 are pending in this application, with claim 6 currently withdrawn from consideration. Claims 1 and 5 have been amended herein. Upon entry of this amendment, claims 1-6 will be pending, with claim 6 withdrawn from consideration. Applicant respectfully submits that no new matter has been added. Support for the amendments to the claims is discussed below. It is believed that this Amendment is fully responsive to the Office Action dated **February 28, 2006**.

Claims 1 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. (Office action paragraph no. 5)

The rejection is overcome by the amendments to claims 1 and 5. Reconsideration of the rejection is requested.

In claim 1, the Examiner refers to the “capable of forming a coating film ...” recitation in claim 1, stating that it is unclear if the process requires a coating of specified brightness L*, or must merely be capable of achieving a value of L*.

Claim 1 has been amended to clarify that the L* value is a characterization of the aqueous white primer in a particular assay. The “capable of” recitation has been deleted. General support for this amendment may be found on page 5, line 24, page 6, line 21, page 9, line 8, and page 23, line

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3. The assay is disclosed on page 23, lines 6-14.

Applicant notes that claim 1 defines the aqueous white primer based on its ability to form a layer having a particular L* value under certain assay conditions, and the method of the claim involves forming a coating film with this primer, but the claim does not recite a limitation on the L* value of this formed film.

The Examiner states that the meaning of “modifier resins” in claim 5 is unclear. Claim 5 has been amended to limit the modifier resins to acrylic resins, polyester resins and polyurethane resins, as supported by the disclosure on page 13, lines 3 to 4.

Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. §103(a) as being unpatentable over Masuda et al. (U.S. Publication No. 2003/0194500). (Office action paragraph no. 8)

The rejection of claims 1, 2, 4 and 5 over Masuda et al. is respectfully traversed, and reconsideration of the rejection is requested. The amendment to base claim 1 was made for clarity in response to the rejection under 35 U.S.C. 112, second paragraph, as discussed above.

Regarding the *prima facie* case of obviousness. Applicant first notes that Masuda et al. does not disclose or suggest the limitations of claim 1. Masuda et al. discloses a process for formation of a coating film, the process comprising the steps of coating the plastic material with a specific aqueous primer coating composition; and thereafter drying the resultant primer coating film in such a manner that its nonvolatile content will not be less than 70 wt.%; and thereafter overcoating the

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primer coating film with a specific aqueous base paint composition; and thereafter drying the resultant base coating film in such a manner that its nonvolatile content will not be less than 60 wt.%; and thereafter overcoating the base coating film with a two-component clear paint; and thereafter baking the resultant three-layered coating film onto the plastic material. Masuda et al. indicates that the primer coating film can be coated with a base coating composition and clear coating composition by electrostatic coating.

The Examiner states that, in Masuda et al., the applied primer is heated to a water content less than 30 wt.%, which encompasses the water content range in step (2) of the present invention.

However, Masuda et al. in no way teaches or suggests adjusting the water content of a primer coating film by heating to within the range of 1% to 10%, as recited in step (2) in the method of claim 1 of this application.

Moreover, Masuda's disclosure in paragraph [0096] appears to indicate that the water content of the aqueous primer coating composition must be greater than 50%: "In the case where the combining ratio of the water is less than 50 weight %, the nonvolatile content in the emulsion is too much, and ... the coating workability is deteriorated." Masuda's water content therefore **does not overlap that in step (1) of claim 1**. Since Masuda does not disclose or suggest these limitations of claim 1, there can be no *prima facie* case of obviousness.

Unexpected effects. In addition to the fact that Masuda et al. does not disclose or suggest the present claims, Applicant notes that the method as defined in claim 1 and its dependent claims

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provides the following remarkable effects as described in the present specification (page 43, line 12, to page 45, line 5):

- (i) After coating a plastic substrate with an aqueous white primer, the coated plastic substrate can be easily coated with a thermosetting clear colored coating composition and a thermosetting clear coating composition by electrostatic coating. With the coating film of the primer being highly white, a light-colored multilayer coating film can be successfully formed having a lightness value (N value) of 8.5 or more based on the Munsell color system as defined in JIS Z 8721.
- (ii) Because the coating film of the aqueous white primer (A) can be coated with a thermosetting clear colored coating composition (B) and a thermosetting clear coating composition (C), both by electrostatic coating, the method of the present invention provides high coating efficiency, reduces energy consumption, and does not release harmful substances into the environment.
- (iii) Because the water content of the coating film of the aqueous white primer (A) is properly adjusted, sagging and other undesirable effects can be prevented in coating with the primer. The method of the present invention thus provides excellent finished quality.
- (iv) The aqueous white primer (A) does not require the use of acicular electrically conductive fillers, which are harmful to the human body; sulfonium salt compounds, which adversely affect the environment; and the like. The method of the present invention, therefore, promotes the recycling of coated plastic articles.

In the present invention, adjusting the water content of a primer coating film to within the

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range of 1 to 10 wt.%, leads to the above-mentioned remarkable effects of the present invention. As described in the present specification (page 28, lines 4 to 13), when the water content of the coating film is less than 1 wt.%, the surface electrical resistivity value thereof is usually not less than 10^9 Ω/square , which makes it difficult to perform electrostatic coating on the coating film. If the water content thereof is more than 10 wt.%, the finished quality is lowered by foaming, sagging or the like on vertical surfaces of the coated substrate, and the resulting coating film have poor performance characteristics such as low water resistance.

The effect of having the primer coating film water content being within the range of 1 to 10 wt.% is demonstrated by the results of Examples 2 to 6 and Comparative Examples 2 and 3 of the present specification.

That is, as shown in Tables 2 to 5 of the present specification, in Examples 2 to 6 and Comparative Examples 2 and 3, the same aqueous primer No. 2 was used, and similar coating steps were employed to obtain multilayer coating films except for the variation in the water contents of the primer coating films. As shown in Table 3, in Examples 2 to 6, the water contents of the primer coating films were adjusted to within the range of 1 to 10 wt.%. The resulting multilayer coating films had excellent properties in terms of coating film appearance, N value, adhesion, and water resistance, as shown in Table 6. In contrast, in Comparative Example 2, the water content of the primer coating film was adjusted to 12 wt.%. As a result, the obtained multilayer coating film had poor properties in terms of coating film appearance, adhesion, and water resistance, as shown in Table 6. In Comparative Example 3, the water content of the primer coating film was adjusted to

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0.5% by weight. As a result, it was impossible to carry out electrostatic coating, as shown in Note 1 of Table 5.

These results are clearly unexpected over Masuda et al.

In addition, the Examiner states that, with respect to the case where a colored coating composition and clear coating composition are applied after coating with the primer, Masuda et al. indicates in [0135] that the conductivity of the primer must be regulated, such as by mixing conductive carbon into the coating, to enable electrostatic coating. The Examiner further states that the claims of this application “do not prohibit the inclusion of such additives, based upon the open-ended language of the claims.”

According to the present claims, however, the addition of conductive carbon as is done in the primers No. 3 and No. 4 shown in Table 1 markedly reduces the L* value of the primer coating films and the N value of the multilayer coating films, as is apparent from Comparative Examples 4 and 5 shown in Tables 4 to 6. It is thus practically impossible to add conductive carbon to the primer in the present invention.

That is, the addition of conductive carbon to the primer is necessary in Masuda et al. to enable the electrostatic application of a colored coating composition and clear coating composition on the primer coating film (Masuda et al., [0135], lines 4-10), whereas such addition is impossible in the present invention.

That is, the mere “recognition that conductivity must be regulated” does **not** provide any

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suggestion to modify Masuda et al. in a manner that would produce the present claims.

Since the limitations of claim 1 are not disclosed, suggested or motivated by Masuda et al., and in view of the unexpected effects also arising from the present claims, claims 1, 2, 4 and 5 are not anticipated by, and are not obvious over, Masuda et al.

Claim 3 is rejected under 35 U.S.C. §103(a) as being unpatentable over Masuda et al. in view of DE 3916-948 (DE948). (Office action paragraph no. 9)

The rejection of claim 3 over Masuda et al. and DE 3916-948 is respectfully traversed.

Applicant has argued above that claim 1, from which claim 3 depends, is not suggested or motivated by Masuda et al. DE'948 does not provide a disclosure or suggestion to cure the deficiencies in the *prima facie* case over Masuda et al. Claim 3 is therefore not obvious over Masuda et al. and DE 391-948, taken separately or in combination.

In view of the aforementioned amendments and accompanying remarks, the claims, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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